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# Mapping Racial and Socio-Environmental Inequalities in Birth Outcomes

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# Neighborhood Environments & Health

- Neighborhood environments shape health
    - Exposure to adverse conditions
    - Access to resources
  - The effects of poor birth outcomes
    - Infant mortality
    - Long-term developmental and health problems
  - How do neighborhood environments affect birth outcomes?
    - Does race/ethnicity matter?
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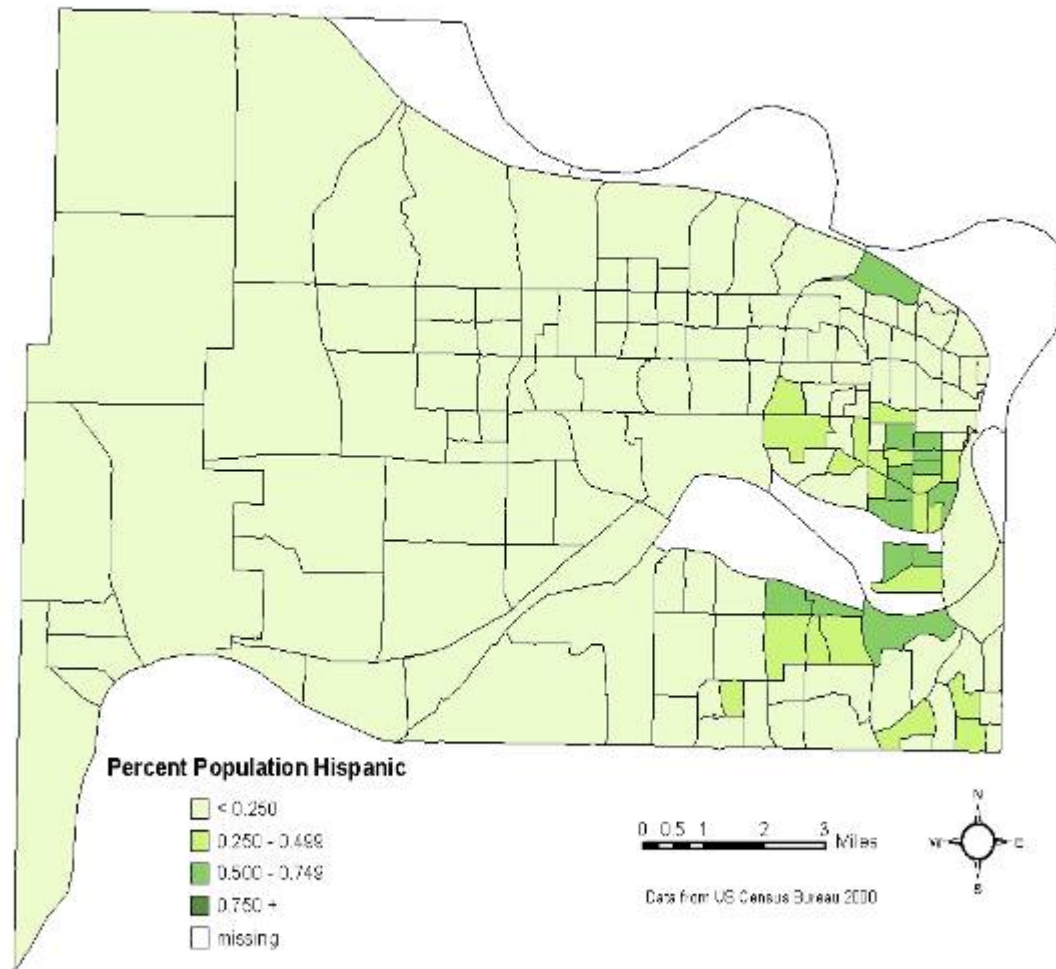
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# Data, Wyandotte County

- 2000 US Census: Neighborhood Socio-Environmental Conditions
    - Concentrations of unemployment, poverty, single-parent homes, owner-occupied housing, high school education, race (Black, Hispanic, White)
    - Overall neighborhood risk rank
  - KS Department of Health and Environment: Birth Outcomes, 2000-2002
    - Percent low-weight and pre-term births (total and by mother's race)
  - Unit of analysis, neighborhood (block group)
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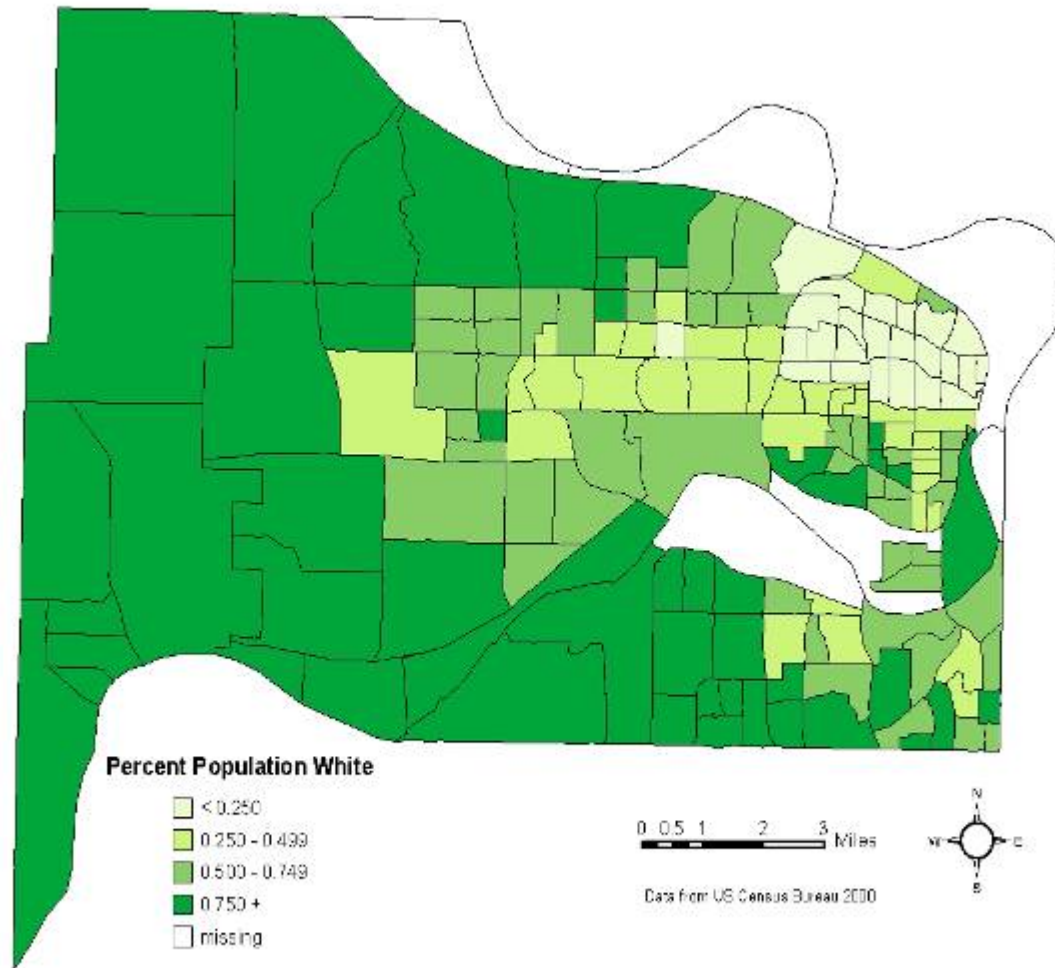
# Mapping Residential Segregation

Wyandotte County, Kansas, Population by Race: Hispanic



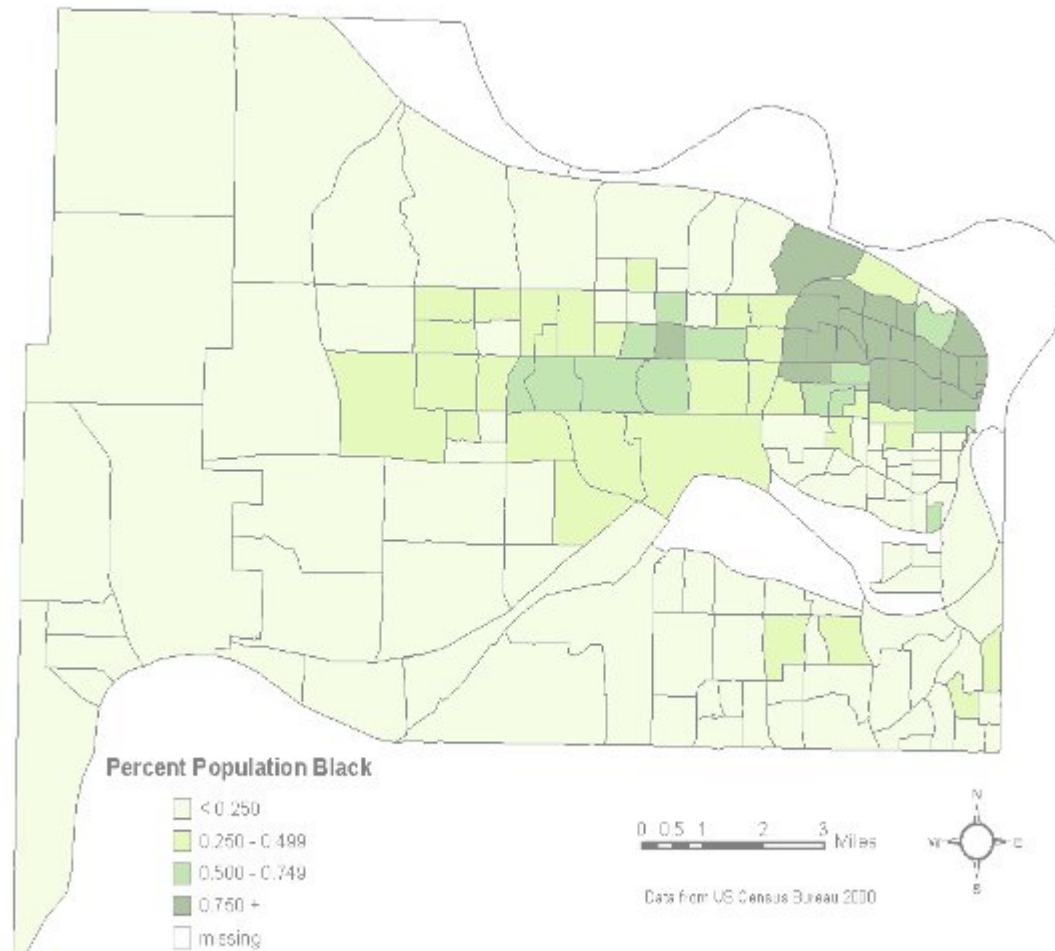
# Mapping Residential Segregation

Wyandotte County, Kansas, Population by Race: White



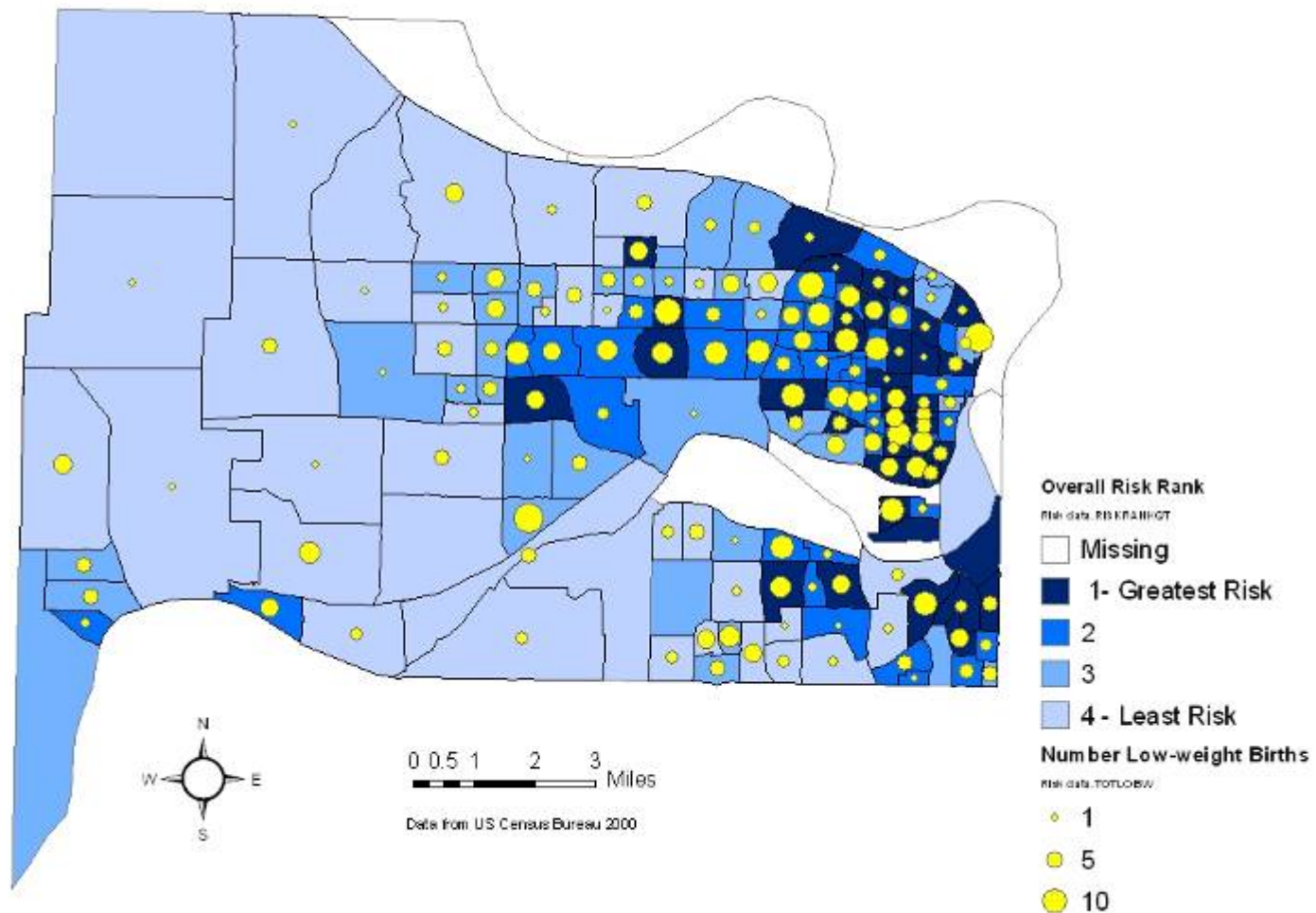
# Mapping Residential Segregation

Wyandotte County, Kansas, Population by Race: Black



# Mapping Poor Birth Outcomes

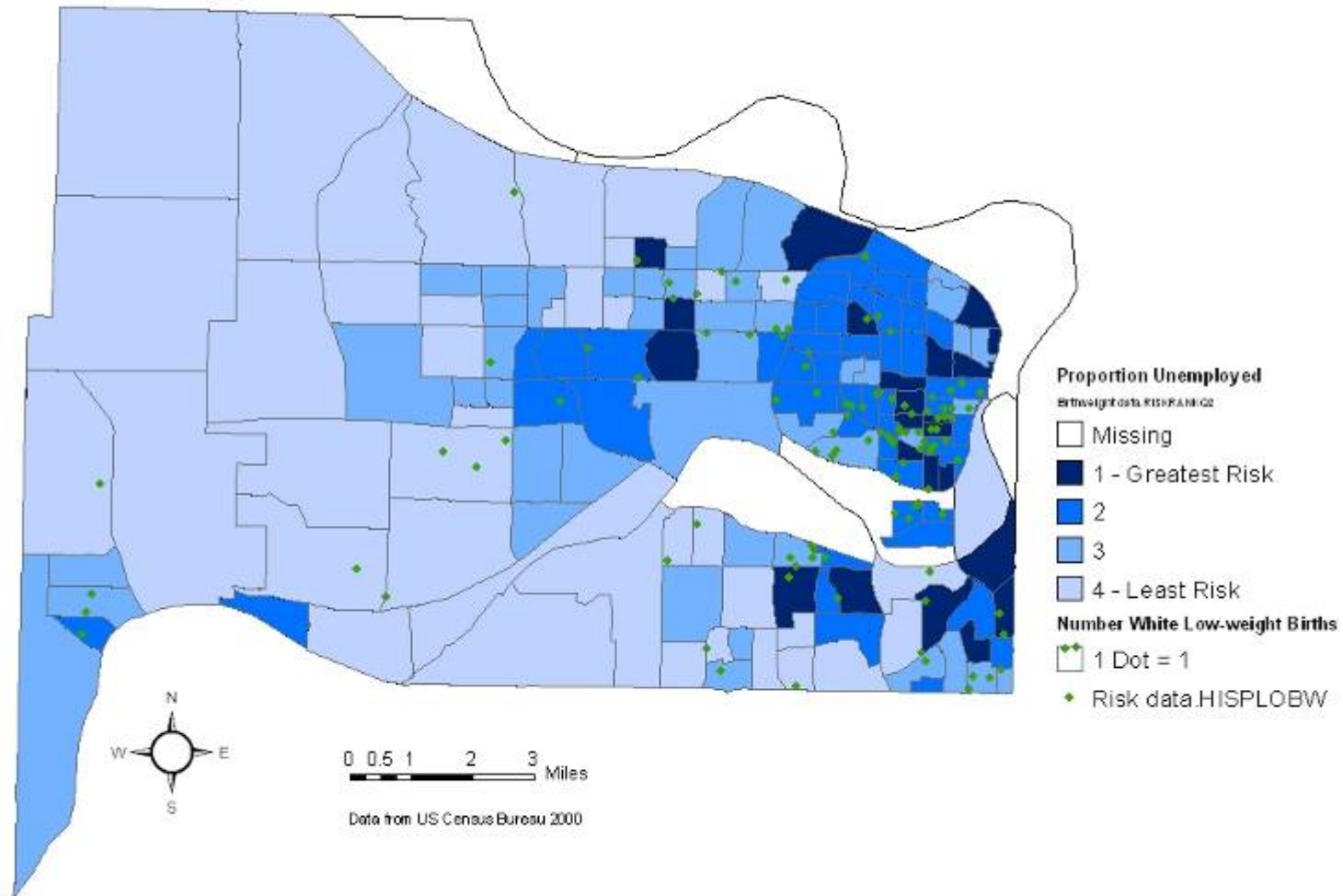
## Socio-Environmental Risk & Low-weight Births





# Mapping Birth Outcomes by Race

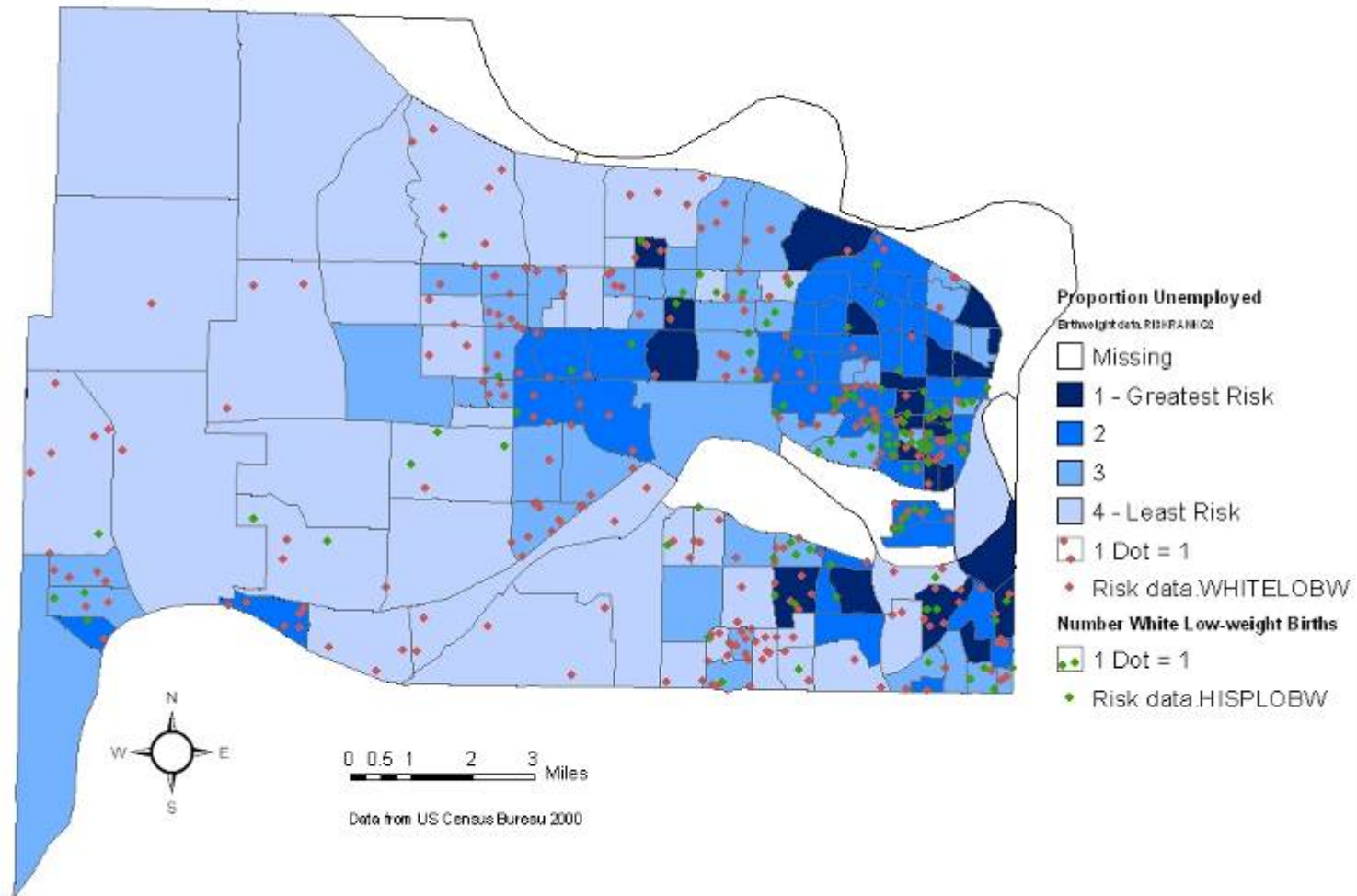
## Socio-Environmental Risk & Hispanic Low-weight Births





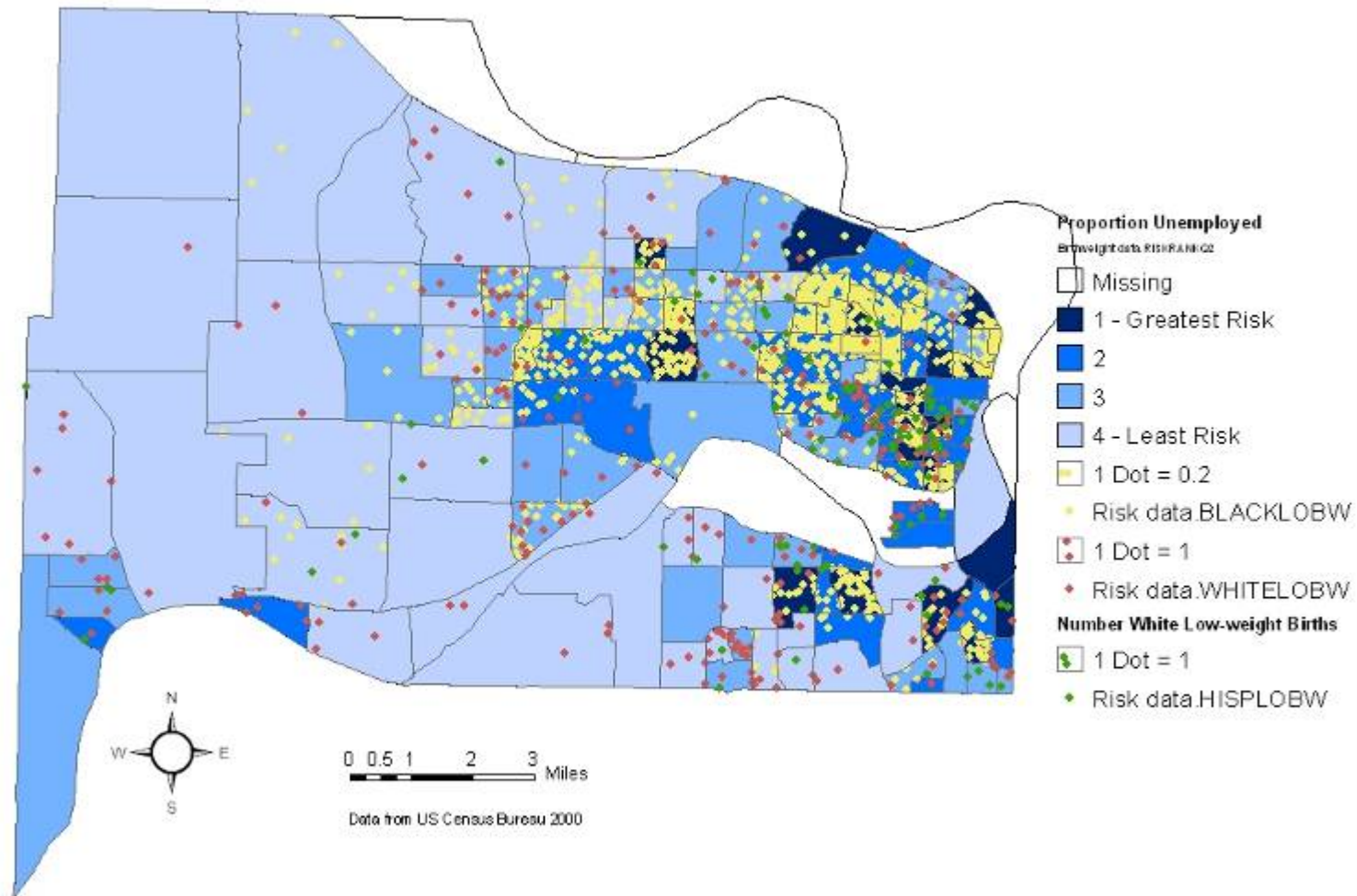
# Mapping Birth Outcomes by Race

## Socio-Environmental Risk & Hispanic, & White Low-weight Births



# Mapping Birth Outcomes by Race

## Socio-Environmental Risk & Hispanic, White, & Black Low-weight Births



# Statistical Results

## ■ Analysis of Variance

- Riskiest neighborhoods have on average 2.2% more low-weight babies ( $t = 2.163$ ,  $p < .05$ )
- Hispanics have significantly better birth outcomes
  - 3.8% less than blacks ( $t = 3.285$ ,  $p < .001$ )
  - 2.4% less than whites ( $t = 2.907$ ,  $p < .05$ )

## ■ Regression Analysis

- Concentration of single-parent homes, proportion population black, and unemployment, significant predictors of total low-weight births (explain 14-16% of variance)
- Concentration of single-parent homes most significant predictor of proportion low-weight births to white mothers (but this measure does not explain a significant proportion of the model variance)

# Conclusions

- Birth outcomes vary considerably by neighborhood and by race of mother
- The effects of individual risk factors also vary by race of mother
- Possible unobserved variables
  - Measures of social capital may be important
  - Measures of proximity and ease of access to services
- GIS application
  - Identifying at-risk neighborhoods
  - Locate service providers to maximize service usage
  - Focus limited state and federal resources